WHAT IS CLAIMED IS:

1. A system comprising:. a plurality of labels generating identifiable spectra in response to excitation energy; and

a detector simultaneously imaging at least some of the spectra upon a surface for identification of the labels.

2. The system of claim 1, wherein at least some of the spectra comprise a plurality of signals defining a plurality of wavelengths, the wavelengths from the spectra being intermingled.

3 . The system of claim 1, wherein the labels comprises at least one semiconductor nanocrystal.

4. The system of claim 2, wherein each label comprises at least one population of semiconductor nanocrystals, each population generating a signal having a population wavelength in response to the excitation energy.

5. The system of claim 4, wherein at least some of the labels comprise a plurality of the populations supported by a matrix.

6. The system of claim 1, further comprising at least one probe body including a label and an associated assay indicator marker, the indicator markers generating indicator signals in response to an interaction between the probe body and an associated test substance so as to indicate results of an assay.

7. The system of claim 1, wherein the simultaneously imaged labels are distributed across a two-dimensional sensing field.

8. The system of claim 7, wherein the detector comprises a diffractor and a sensor, and wherein each label is sufficiently smaller than the sensing field so that the spectra can be wavelength-dispersed by the diffractor without excessive overlap of the dispersed spectra upon the sensor.

9. The system of claim 1, wherein the detector comprises a light sensor and a diffractor, the diffractor disposed between the sensing field and the light sensor, the sensor simultaneously sensing the spectra from the plurality of labels.

10. The system of claim 9, wherein an open optical path extends from the sensing field to the diffractor and from the diffractor to the sensor, the sensor comprising an areal sensor, the open optical path having an open cross-section with significant first and second open orthogonal dimensions.

11. The system of claim 10, wherein no slit aperture is disposed along the optical path to restrict the sensing field, and wherein the diffractor comprises an element selected from the group consisting of a prism, a dispersive reflective grating, and a dispersive transmission grating.

12. The system of claim 1, further comprising a spatial position indicator to identify label positions within the sensor field, wherein the detector senses relative spectral data.

13. The system of claim 12, further comprising a spectral analyzer coupled to the label position indicator and the detector, the analyzer deriving absolute wavelengths of the spectra in response to the relative spectral data and the identified label positions.

14. The system of claim 13, further comprising a first beam splitter disposed to optically couple the label position indicator with the sensing filed along a positioning optical path, and to optically couple the detector with the sensing field along a spectral optical path.

15. The system of claim 14, wherein the detector comprises an areal sensor and wherein the label position indicator comprises a processing module, the first beam splitter directing a first energy from the sensing field, past a diffractor and toward the areal sensor for generating spectral data, the first beam splitter directing a second energy from the sensing field to a position indicator for generation of position data.

16. The system of claim 13, further comprising a second beam splitter disposed along an optical path from the sensing field, wherein a first dispersion member is disposed in the spectral optical path so as to disperse wavelengths of the spectra along a first axis, and wherein a second dispersion member is optically coupled to the second beam splitter so as to disperse wavelengths of the spectra along a second axis, the first axis at an

angle to the second axis relative to the sensing field for resolving spectral ambiguities of overlapping wavelengths along the first axis.

17. The system of claim 1, wherein at least some of the spectra comprise a plurality of signals, the detector further comprising means for distributing the signals across a sensor in response to wavelengths of the signals and positions of the labels in the sensor field, the distributing means disposed between the sensing field and the sensor.

18. The system of claim 17, further comprising means for determining positions of the labels within the sensing field, and a spectral analyzer coupled to the positioning means and the sensor, the analyzer determining the spectra.

19. The system of claim 18, wherein the positioning means comprises either an areal sensor and a beam splitter, or a calibration reference signal within the at least some spectra.

20. A system comprising:

a plurality of labels distributed across a two-dimensional sensing field, the labels generating spectra in response to excitation energy;

a diffractor disposed in an open optical path of the spectra from the two-dimensional sensing field;

a sensor in the path from the diffractor;

a label positioning system coupled to the labels; and

an analyzer coupled to the sensor for identifying the labels in response to the sensed spectral information.

21. A method comprising:

generating spectra from a plurality of labels;

sensing the spectra with a sensor by simultaneously imaging the labels on the sensor; and

identifying the labels in response to the simultaneously sensed spectra.

22. The method of claim 21, further comprising transmitting excitation energy to a label to generate an associated spectra, the label comprising a semiconductor nanocrystal.

23. The method of claim 21, wherein the labels are movably disposed within a two-dimensional sensing field while sensing the spectra.

24. The method of claim 21, further comprising determining positions of the labels when the spectra are sensed by the sensor, and identifying the labels in response to the label positions and data from the sensor.

25. The method of claim 21, further comprising dispersing the spectra from the labels across the sensor with a diffractor, and determining the spectra in response to the sensed disbursed spectra.

26. The method of claim 25, further comprising dispersing the spectra from the labels along a second dispersion axis at an angle to a first dispersion axis so as to resolving ambiguity of spectral overlap along the first spectral axis.

27. The method of claim 26, wherein the angle is between 0° and 180°.

28. The method of claim 21, further comprising deriving the spectra in response to a calibration reference signal of at least one of the spectra.

29. A method for identifying signals of differing strengths, the method comprising:

generating a plurality of signals in response to excitation energy, the signals comprising higher intensity signals and lower intensity signals;

sensing the lower intensity signals by simultaneously imaging the signals on a sensor; and

sequentially sensing at least some of the higher intensity signals.

30. The method of claim 29, wherein at least one of the signals is generated by a semiconductor nanocrystal.

31. The method of claim 29, wherein sensing the lower intensity signals comprises imaging for a first integration time, and wherein sequentially sensing the higher intensity signals comprises sequentially imaging for a second integration time shorter than the first integration time.

32. The method of claim 29, further comprising filtering the higher intensity signals from the simultaneously imaged signals.

33. The method of claim 32, wherein the higher intensity signals have wavelengths that are different than wavelengths of the lower intensity signals, and wherein the filtering step comprises wavelength filtering the higher intensity signals.

34. The method of claim 29, wherein the higher intensity signals are sequentially sensed by scanning markers generating the signals, and wherein the markers generating the higher intensity signals are spatially intermingled with the markers generating the lower intensity signals.

35. The method of claim 34, wherein the scanning step comprises scanning an aperture relative to the markers.

36. The method of claim 35, wherein the scanning step comprises scanning a slit relative to the markers.

37. The method of claim 29, wherein the excitation energy comprises a first energy, the first energy exciting high-energy markers to generate the high energy signals, and a second energy, the second energy exciting low-energy markers to generate the lower energy signals.

38. The method of claim 37, wherein the second energy is less than the first energy, and wherein the second energy selectively excites the low energy markers.

39. The method of claim 29, wherein the high intensity signals are generated by label markers and define an identifiable spectral code, and wherein the low intensity signals are generated by assay markers and indicate results of a plurality of assays, each assay having an associated spectral code.

40. The method of claim 39, wherein the markers are supported by probe bodies to define probes, each probe comprising a label with at least one label marker to generate the spectral code, wherein at least one assay marker is associated with the probe to indicate results of an associated assay, and further comprising determining each assay result by identifying each label and correlating the label with the associated marker signal.

41. A method for acquiring signals comprising:

generating a first plurality of signals from a first plurality of markers in response to a first excitation energy;

generating a second plurality of signals from a second plurality of markers in response to a second excitation energy, the first and second markers being intermingled;

tuning intensities of the first signals relative to intensities of the second signals by selecting a characteristic of at least one of the first and second energies; and

simultaneously imaging the tuned first and second signals on a sensor.

42. The method of claim 40, wherein at least one of the markers comprises a semiconductor nanocrystal.

43. The method of claim 40, wherein the first energy selectively energizes the first plurality of markers, and wherein the intensities of the signals are within an acceptable intensity range of the sensor by:

varying an intensity of at least one of the first and second energies;

by varying a detection efficiently of the sensor to at least one of the first and second signals; or

by varying a percent reflection or filtering of at least one of the first and second signals.

44. A high throughput assay method comprising:

performing a plurality of assays;

generating assay signals with assay markers indicating results of the assays;

simultaneously areal imaging the assay markers;

generating spectral codes associated with each assay marker; and

interpreting the assay results by identifying the spectral codes and assay markers and correlating each spectral code with an associated assay marker signal.

45. A system for detecting spectral information, the spectral information including higher intensity signals and lower intensity signals, the signals generated within a two-dimensional field, the system comprising:

a detector optically coupleable with the two-dimensional field for simultaneous imaging of the low intensity signals; and

a scanner having an aperture for sequential sensing of the higher intensity signals.

46. A system comprising:

a plurality of labels generating identifiable spectra in response to excitation energy;

other markers intermingled with the labels, the other markers generate other signals, the other signals weaker than the spectra;

a scanner having an aperture for sequentially sensing to the labels; and

a detector optically coupled to the plurality of other markers for simultaneously imaging the other signals.

47. The system of claim 46, wherein at least one label comprises a semiconductor nanocrystal.

48. The system of claim 46, wherein each label is affixed to an associated other marker by a probe matrix, the labels, other markers, and matrix defining a plurality of probe bodies, the other signals comprising assay markers to indicate results of an assay associated with the spectra of the labels.

49. The system of claim 48, further comprising a processor coupled to the scanner and the detector so as to determine the results of each assay in response to the spectra as sensed by the scanner and the associated assay markers as sensed by the detector.

50. The system of claim 49, wherein an integration time of the detector for sensing of the other signals is longer than an integration time of the scanner for the spectra.

51. The system of claim 46, wherein the other signals have wavelengths different than the spectra, and further comprising a filter or a beam splitter in an optical path of the detector, the filter or beam splitter transmitting the other signals and inhibiting saturation of the detector by the spectra.

52. The system of claim 46, further comprising a first excitation energy source transmitting a first excitation energy toward the other markers, the first excitation energy selectively energizing the other markers.

53. The system of claim 52, further comprising a second excitation energy source transmitting a second excitation energy toward the labels.

54. A high throughput assay system comprising:

a fluid;

an excitation energy source transmitting excitation energy toward the fluid;

a plurality of assay probes disposed in the fluid, each probe having a spectral label, the spectral labels generating identifiable spectral codes in response to the excitation energy, the probe generating assay signals in response to assay results;

a scanner moving a sensing region relative to the fluid for identification of the probes from the spectral codes; and

a two-dimensional imaging system for simultaneously imaging the assay markers from throughout a two-dimensional sensing field.

55. A high throughput assay system comprising:

a fluid;

a first excitation energy source transmitting a first excitation energy toward the fluid;

a second excitation energy source transmitting a second excitation energy toward the fluid;

a plurality of assay probes disposed in the fluid, each probe having a spectral label and being associated with an assay marker in the fluid, the assay marker transmitting an assay signal in response to assay results and in response to the second excitation energy, the first excitation energy selectively energizing the spectral labels so that the spectral labels transmit identifiable spectral codes;

a sensing system for sensing the assay signals and the spectral codes, the sensing system having an intensity range, intensities of the first and second excitation sources selected so that the assay signals and the spectral codes are within the intensity range.

56. A fluid-flow assay system comprising:

a fluid;

a probe movably disposed within the fluid, the probe having a label to generate an identifiable spectra and an assay marker to generate an assay signal in response to interaction between the probe and a detectable substance;

a probe reader sensing the spectra and signal when the probe and fluid flow through a sensing region to determine an assay result.

57. A fluid-flow assay method comprising:

moving a probe by flowing a fluid;

imaging the moving probe and dispersing the image, wherein the probe is sufficiently small to act as its own aperture for sensing a spectra from the dispersed image;

determining results of an assay by identifying the probe from the spectra.